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VIII.—*On the third Persepolitan Writing, and on the Mode of expressing Numerals in Cuneatic Characters.* By the Rev. EDWARD HINCKS, D. D.

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Read 11th January, 1847.

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WHEN I laid before the Academy, at its last sitting, my alphabet of the third Persepolitan writing, with the corresponding lapidary characters, I by no means expected that it would prove perfectly correct. No first attempt at the alphabet of an unknown language has been so. I considered it, however, an approximation, and, probably, as near a one as could be attained by means of the data in my possession; and I looked forward to its being amended by those who had the command of more numerous inscriptions. There were some circumstances which left no doubt on my mind that error existed somewhere in it, though I could not discover where. The number of dentals was too small; there was no character for *tu* or *du*; the name in N. R. 11, answering to *Haraûtish*, and the word corresponding to the compound epithet *wisadahyush*, in D. 11, were only *in part* legible; and the manner of writing the name of Ormazd, in the inscription H., and that of Artaxerxes, on the vase at Venice, could only be explained by supposing the sculptors to have committed errors. All these difficulties, and others connected with the great inscription of the E. I. Company, have been removed by an important rectification, or series of rectifications, which I have made during the last fortnight; and the language has, moreover, been brought to exhibit a much greater similarity to the other Semitic ones than I had at first supposed. I have, therefore, to request leave to substitute the alphabet which I now send for that in my last paper. As the correspondence between the cursive and lapidary characters in the plate to that paper\* is correctly given, though the values of many of the characters are erroneous, and as the plate is, I believe, partly engraved, I propose to let it stand, with so much of the paper as is necessary for understanding it; but the transcriptions of Babylonian words into Roman characters, and the catalogue of Babylonian characters, will be superseded by those

\* The table of characters in page 245.

which follow, which are much more correct. In the plate which I now send I give no lapidary characters, but instead thereof I give many additional Persepolitan ones; and at the foot of it I give a series of numbers from the rock inscriptions at Van, exhibiting the mode of expressing numbers in Cuneatic characters, from 1 to 100,000. These are so arranged as to require no comment. The historic character of these inscriptions, of which I received a copy very recently, is obvious.

An important consequence of the rectifications of the Babylonian alphabet which I have now made is this. The name of Parthia is now read *Bartû*, instead of *Barsa*. This word is written in the old Persian with the letter of disputed value, No. 18, where I formerly read *s*, and now *t*. This reverses an argument on which I had relied in my former paper, for the value of this character being *z*; and combining this transcription with the mode of writing the word *wizê*, as I formerly read it, in the window-inscription of Darius, where the Babylonian has *in bit*, "in the house," I am now satisfied that the value of this character is *th*, as given by Jacquet, Lassen, and Major Rawlinson. There is now, then, I believe, an almost perfect agreement between the Major and me as to the first Persepolitan alphabet. That used in his transcription of the Bisitun inscription differed from that given in my first paper (read on the 9th June last), as to fifteen characters. As to three of these, I have adopted his values; as to nine others, he has adopted mine, though, as I understand, without any knowledge of my having given them; and as to two more, we have both altered our values, so as to be now in agreement. We now differ, I believe, as to only one character, No. 12; and it is of little consequence whether this *properly* represented *z* or *zh*, as it was the only character that could be used to express both these sounds.

I will now briefly sketch the method by which I was led to these rectifications. The key word was the name of Susa, which begins with the characters 74, 34 of my former alphabet, read *Su.ba*. The Persian begins with *U.wa*, which, according to the principles laid down in my first paper, and in agreement with the Greek transcription, should be read *û*. At first I was inclined to read it *uwa*, making the word a trisyllable, on the authority of the Babylonian; but afterwards I felt confident that the two first Babylonian characters must express *sû* only. From this I inferred that the same method of expressing *û* might be used in other words, and a corresponding method of expressing *î*; and, conse-

quently, that, when two characters were used to express one syllable, it was not certain that they commenced with the same consonant, as I had before assumed; for the latter might equally well be a *labial* or *guttural*, lengthening the preceding *u* or *i*. This led me to a new analysis of the name of Nebuchadnezzar, which I formerly read, as it occurs in the first line of the great inscription of the E. I. C., *Nabu.k'.ku.r'.ra.sa.ar.ra*, and now *Nabu.k'.ku.ba.ru.ba.sa.ra*, with the values of three characters altered, including a very important one, the sixth in the word. The change in the value of this character, No. 66 of my former paper, shewed me that I had erred in assuming that the words signifying "great," in E. 1 and 6, were transcriptions of the Median words *ersa* and *ersarra*; and I was thus led to seek other values for the characters in these words which I had valued under this misconception. This led me to other rectifications; and, in conclusion, observing the greatly increased resemblance to the Semitic dialects which the language assumed in consequence of these changes, I thought it best to alter the vowel notation, substituting *e*, equivalent to the Hebrew *Sheva*, for the *u* of my former alphabet. The simple characters, then, consist of consonants followed by these two vowels, *a* (.) and *e* (:). The other vowels are represented by combinations of these with each other, with or without the intervention of certain semivocal labials and gutturals, distinguished in the alphabet by having a † prefixed to them. Thus, *a.be* is *au*, or *á* (·); *a.ge*, *é* (·); *e.be* or *e.ba*, *û* or *ô*; and *e.ge* or *e.ga*, *î*; while the short vowels proceed from the concurrence of two *e*'s, the latter of which becomes mute, while the former is generally to be sounded as *i*, but occasionally as other short vowels. Further researches may, perhaps, supply more accurate rules; but I feel confident that, by following these, the pronunciation will be attained in a very approximate manner. The concurrence of two equivalent syllables will be readily seen to be analogous to the Hebrew *dagesh*. It is found, however, in cases where *dagesh* could not occur in Hebrew, as in *ne.ne*, when initial. Here, I have little doubt, the duplication has the effect of lengthening the vowel, or detaching it from any syllable containing *e* that might follow. I read the above *n'ni*, or *n'nē*; *ne.ne.be* must be read *n'nē.be*, not *n'neb*.

I class the letters in six divisions, labials, gutturals, dentals, nasals, linguals, and sibilants. Some of these are subdivided, as will be seen in the alphabet given on the following page.

## CORRECTED THIRD PERSEPOLITAN ALPHABET.

Characters in the first division of each class regularly represent the consonants belonging to it followed by *e* (:); and those in the second the consonants followed by *a* (-). Values different from those are annexed to the characters which admit them. *al.* denotes “always”; and if it be not used, “sometimes” is understood. *in.* signifies “when initial”; *fn.* “when final”; and *abb.* “by abbreviation”. \* is prefixed to characters which are sometimes used as non-phonetic initials; and ‡ to labials and gutturals, which, when not accompanied by equivalent characters, combine with the preceding vowel; sometimes when it is an *a*, and always when it is an *e*; the former becoming *â* (ʀ) or *ê* (...); the latter *û* (ʁ) or *ï* (ʁ.). When dissimilar consonants, both followed by *e*, meet, the latter is mute, as it also is, for the most part, after *a*.

LABIALS, B, ETC. ו ט פ ב		* 20 ב "province." 21 ב abb. "man."	41 ב ש י is.	61 ב ב	79 י
		* 22 י ב "one." 23 ב ב	DENTALS, T, D. ד ט ת	62 ב ב 63 ב ב 64 ב do. "king." 65 ב do. 66 ב do. "king." 67 ב do. al. "king."	80 ב 81 ב 82 ב (= 1·84?) 83 ב 84 ב 85 ב
† 1 ב in. ב; abb. "son." 2 ב al. abb. "son." 3 ב in. ב 4 ב al. "and." 5 ב ב al. "and."		† 24 ב ב † 25 ב ב † 26 ב ב	42 ב ב 43 ב ב 44 ב ב 45 ב ב 46 ב ב 47 ב ב		
† 6 ב in. ב "and." † 7 ב in. al. ב † 8 ב † 9 ב 10 ב [see 34, 45, and 78.] 11 ב 12 ב 13 ב 14 ב 15 ב 16 ב in. ב 17 ב 18 ב		GUTTURALS, G, ETC. י ח כ ב † 27 ב in. al. י i. † 28 ב in. al. י i. † 29 ב † 30 ב † 31 ב in. al. ח † 32 ב † 33 ב 34 ב 35 ב fi. al. י "my." † 36 ב † 37 ב al. as termina- † 38 ב ral. 39 ב ח kha. 40 ב do.	48 ב י 49 ב 50 ב ח 51 ב 52 ב abb. "house." 53 ב י	LINGUALS, R, L. ר ל 68 ב 69 ב 70 ב 71 ב 72 ב 73 ב abb. "earth." 74 ב 75 ב 76 ב 77 ב ב	86 ב ס 87 ב 88 ב 89 ב ש sha. 90 ב ח cha. 91 ב ס 92 ב י 93 ב י {see 5 & 23}
† 19 ב			NASALS, N, נ * 54 ב { abb. Nebe, "God." 55 ב 56 ב abb. "man." 57 ב 58 ב abb. "earth." 59 ב 60 ב	66 ב 67 ב 68 ב 69 ב 70 ב 71 ב 72 ב 73 ב 74 ב 75 ב 76 ב 77 ב 78 ב	Omitted in Proper Place. † 94 ב 95 ב

### CUNEATIC NUMERALS.

1 2 3 4 5 6 7 8 9 10 20 30 40 50 60 70 80 90 100

200 1000 2000 10,000 2665 17,342 1270

The following is a list of the Babylonian characters which correspond to these. A reference to each Persepolitan character in the alphabet follows the number of the Babylonian one which most closely corresponds to it in form. These characters are numbered as in the list published by Mr. Fisher in 1807, up to 287; I have added nine other characters, chiefly compound ones.

LABIALS.

*be, we*; the first five also, when initial, *e* or *ā*, *æ*. 4 (No. 1); 135 (No. 3), 136, [a house, *bit*]; 273, 132, 175, 176, 201 (No. 2) [son]; 21 (No. 4), 289 (No. 5 = 32 + 121, 2, or 3) [*always* and, *u*]; 46 (No. 6) [*when initial, generally* and, *u*]; 71 (No. 7), 116, 117, 118, 119 (No. 8), 120, 121, 122, 123, 128, 130, 178, 179, 180, 222 (No. 9), 51. All the preceding, when not joined with a second character of like power, are in general *we*, and combine with a preceding vowel, forming *u* with *e*, and *au* or *ā* with *a*. 26 (No. 10), 25, 208, 209 (No. 11), 37, 59 (No. 12), 60, 275 (No. 13), 225 (No. 14), 233, 234, 79 (No. 15), 253 (No. 17), 254, 44 (No. 18), 294 (= 32 + 51), 76, 115, 159; 2 [two, both]; 276, 277, 278, 279.

*ba, wa*; 111, 112 (No. 19); 238 [*generally, wa*]; 83, 88, 183 (No. 20) [a province; also a non-phonetic initial of names of countries]; 171, 172 (No. 21).

*an*; 1 (No. 22); *ar*, 291 (No. 23 = 32 + 73); *bar* or *war*, 104, 105\* (No. 24); 177, 178 (No. 26); *bare*, 263; *bis*, 166, 169.

GUTTURALS.

*ge, ye*; 12 (No. 27), 41, 42, 43 (No. 28), 23, 24 (No. 29), 31 (No. 30), 151 (No. 31, and with same initial value) 113 (No. 32), 141, 142, 143 (Nos. 33, 95), 288 (No. 94, = 4 + 4), 295 (No. 34, = 26 + 273), 283, 284, 40. All the preceding, or nearly all, when not joined with a second character of like power, are, in general, *ye*, forming, with a preceding *e*, *i*, and with a preceding *a*, *ay* or *ē*.

\* I give this value to these characters, because the transcriptions show that it was that of the corresponding cursive character in Persia; yet I think it probable that the final *r* was dropped at Babylon. The common word, 287, 231, 105, seems to correspond to the Hebrew צֶלֶם or צִלְמוֹ, in the emphatic form, meaning "a (divine) image." This could scarcely have been sounded with a final *r*. On the gems, this word precedes the name of Nebuchadnezzar in the legend which encircles his head; and it is there in the plural number.

*ga, ya* ; 249 (No. 35) [*where final, always my, ya*] ; 50 (No. 37) [*always affirmative of the plural, ya*. 22 is, I believe, an ideographic sign of the plural, standing for the proper termination, whatever that may be] ; 153, 154 (No. 36) [*generally, ya*] ; 165, 167 (Nos. 39, 40) [*generally, kha*].  
*is* ; 262 (No. 41).

#### DENTALS.

*te* ; 34 (No. 43), 195, 196, 197, 198, 269 (No. 44), 290 (No. 45, = 26 + 202) 203, 204 (No. 46), 187, 188, 189 (No. 47), 38 [*as plural termination*].  
*de* ; 260, 270 (Nos. 48, 49).  
*ta* ; 272 (No. 50), 17 (No. 51), 81, 82, 182, (No. 52) [*abb for tas, house* ; it appears sometimes to be used as a non-phonetic initial of names of buildings].  
*da* ; 268 (No. 53).  
*ti* ; 16, 97, 98, 99 ; *dasi*, 248.

#### NASALS.

*ne* ; 289 (No. 54) [*used by abbreviation for 289, 140, 225, n'nebe, God* ; also as a non-phonetic initial, and in conventional symbols for the names of different deities. Thus, 287, 287, or 287, 94, are to be read *Bil*, the name of the principal Babylonian deity] ; 27 (No. 55), 257 (No. 56), 256, 258, 191 (No. 58), 193 (No. 59), 194, 160, 228, 229 (No. 57), 230, 91, 92, 93, 139, 140 (No. 60).  
*nu* ; 28 (No. 62), 274.  
*ni* ; 292 (No. 63), 293 (No. 64), 212, 192 (No. 65), 103 (No. 66), 206 (No. 77) [*always meaning king, as the preceding frequently do also*].  
*nesi* ; 29.

#### LINGUALS.

*re, le* ; 73 (No. 68), 251 (No. 69), 252, 239 (No. 70), 15 (No. 71), 162, 163 (No. 73), 133 (No. 74), 134, 52 (No. 75), 53, 95 (No. 76), 94, 96, 144, 145, 146, 147, 148, 164.  
*rebe*, [great] ; 39 (No. 77).

SIBILANTS.

*se, she* ; 69 (No. 78), 70, 11 (No. 79), 77 (No. 80), 114 (No. 81), 106, 107, 108, 109, 110, 173, 214 (No. 82) [this may, perhaps, be a combination = 4, 90, *as* or *wes*]; 215, 199, 200 (No. 83), 90 (No. 84), 85, 86, 87, 89, 184; 45 (No. 85).\*

*sa, sha* ; 5 (Nos. 86, 89) ; *cha* ? (or if not, = 5) 205 (No. 90).

*su* ; 48 (No. 91), 124, 181.

*si* ; 125, 126 (No. 92), 32 (No. 93), 226, 227 ; *char, chal*, 231, 296.

Here are 199 characters valued. Besides these, I have ascertained that 3 is a numeral representing "three;" in like manner, 2 always represents "two," or "both," in the great inscription, though it is used for *bi* in the name of Babylon on a gem. It is probable that 6, 7, 8, 19, and 20, represent numerals also; but I have not been as yet able to interpret the passages where they occur. I conclude with transcriptions of proper names which occur in the inscription. I first give Persepolitan ones, numbered as in the corrected alphabet. Characters to which † is prefixed are liable to be omitted. The representatives of characters so marked are within parentheses.

54, 1, 7, 69 (or 70), 19, 82, 53, 36,

Or 54, 6, 70, 19, 82, 53,

22, 32, 76, 85,

22, 53, †1, 68, 35, †1, 78,

22, 31, 93, 36, 23, 93, (or 86, 36),

22, 23, 50, 36, 78, 86, 80, 92,

22, 41, 50, 82, 18,

22, 1, 39 (or 40), 19, †54, 65 (or 64), †84, 93, 36,

20, 10, 3, 73,

20, 24 (or 25), 92 (or 86, 94),

20, 24, 45, 6,

20, 19, 53, 94,

20, 81, 19, 32,

20, 88, 24, 53,

\* *A.u.r'.ba.s'.da.y'.* (i.e. *dē*).

\* *U.r'.ba.s'.da.*

\* *Ge.r'.as.*

\* *Da.(w).r'.ya.(w)'.s'.*

\* *Khe.si.ya.ar.si* (or *sa.y'i.e.sē*).

\* *Ar.ta.g'.s'.sa.s'.si.*

\* *Is.ta.s'.be.*

\* *A.kha.ba.(n').ni.(s').si.ya.*

*Ba.b'.be.le.*

\* *Bar.si* (or *sa.ye*) (Persia).

\* *Bar.te.w'* (i.e. *tū*) (Parthia).

\* *Ba.da.ye* (Media).

\* *Se.w'* (i.e. *Su*).*ge* (Susa).

\* *Sa.bar.da.*

\* Since the above was written I have satisfied myself that this last character had the value *as*. I have, accordingly, given it this value in the transcriptions which follow.



In the next three words some letters are deficient; but I have restored them within brackets in a manner that appears to me certain. Parts of the characters remain.

20, 7, 19, 68 [85], 19, 36,	* <i>U.ba.r'.as.ba.ya.</i>
[20, 35], 19, 62,	* <i>Ya.ba.nu.</i>
20, 1 [70, 12], 19 [43], 36,	* <i>A.re.be.wa.(i.e.bû).te.ya.(i.e.ti).</i>

In the inscription on the portal, D, line 11, the Persian word *wisadahyush* is transcribed as follows, the termination being altered a little :

6, 36, 87, 53, 1, 36, 27, 83, 28,	<i>we.ya.(i.e.wi).sa.da.w'.ya.y'.se.y'.</i>
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The following are numbered as in the enumeration of lapidary characters.

172, 26, 76, 163,	<i>Ba.b'.be.le.</i>
183, 287, 94, 160,	<i>Ba.bil.le.</i> See "NASALS" above.

The name of Nebuchadnezzar is written in the following manners, among others :

287, 40, 113, 120, 73, 46, 205, 239,	<i>N'nebe.g'.ge.w'.re.w'.cha.r'.</i>
287, 140, 225, 143, 263, 46, 205, 209,	<i>N'.ne.be.ge.bare.w'.cha.r'.</i>
287, 40, 263, 46, 205, 239,	<i>N'nebe.ge.bare.w'.cha.r'.</i>

The correct pronunciation of the name appears to be *Nebekûlûchar*. On the bricks there is a peculiar character, which I have called 296, used for the final syllable. Sometimes, also, a *d*, 260, is introduced into the word.